

Various Software Topics

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Level For Limits:

- Provides operators a target value needed to meet the limit.
 - Operate below the level for limit to stay below the limit at the end of the hour/period.
- Based on current and previous values in period.
- Works for all short-term limit periods – Hourly, Multi-Hour Rolling, Multi-Hour Block, Daily, etc.

Minutes Until Exceedance:

- Used for variable length Startup/Shutdown event-based limits where level for limit logic does not work
- Provides operators a length of time until they exceed the limit.
- Uses running total of event to calculate allowable mass remaining and number of minutes remaining based on current emission rates.

Alarming:

Timing of alarms:

- Common frequencies of current hour warning alarms:
 - 5-min
 - 10-min
 - 15-min
- What frequency is too frequent?
- What frequency is not frequent enough?
- Aim for a balance of providing enough time for operators to react without desensitizing.

Alarming:

Values to alarm at:

- Most current hour alarms trigger when values are above the limit
- What value is too low?
- What value is too high?
- Aim for a balance of providing enough time for operators to react without desensitizing.

Alarming:

Alarm severity levels (Typical Setup):

- Warning alarms (Yellow alarms):
 - Indicate the unit is potentially going to exceed a limit
 - Indicate an abnormal condition with the CEMS system.
- Serious Alarms (Red alarms):
 - Indicate the unit has exceeded a limit
 - Indicate that the CEMS data is invalid
- Info Alarms:
 - Indicate various status conditions that may be useful
 - Can be turned off in the Data Monitor to reduce clutter in alarm windows.

Alarming:

Persistent vs Non-Persistent alarms:

- Persistent alarms remain active (latched) in CeDAR until the condition clears.
 - CEMS alarms are persistent alarms
 - Can be configured to realarm after a set time if the alarm condition is still active
- Non-Persistent alarms inactivate as soon as they are triggered.
 - Limit alarms are non-persistent alarms but can be configured as persistent alarms.
- Reminder: Both Active and Inactive alarms stay in the Data Monitor alarm display until acknowledged.

All Configured Alarms Report:

Alarms configuration interface showing options for generating an All Configured Alarms Report. The 'Options' section includes:

- Print a list of all alarms configured in the system
- Include alarm logic descriptions
- Serious
- Warning
- Info
- LIMIT
- STATUS
- COMM
- BACKUP
- CONFIG
- DAS
- SECURITY
- Show acknowledgment info

Buttons: Select All, Deselect All, From (9/9/2023), To, Save As, Preview, Print, Close.

Alarm	Category	Severity	Frequency
Unit P11: CO lb/mmBtu 3-Hr Rolling <i>Alarms when 'CO lb/mmBtu 3-Hr Rolling' is greater than or equal to 'CO lb/mmBtu 3-Hr Rlng Limit' 0.013 and 'Process Code 3-Hr Rolling' is not 'Cold Startup' and not 'Hot Startup' and not 'Shutdown'</i>	LIMIT	Serious	1 hour
Unit P11: CO lb/hr Crnt-Hr <i>Alarms when 'CO lb/hr Crnt-Hr Avg' is greater than or equal to 'CO lbs 3-Hr Rlng Limit' 29.22 and 'Process Code Crnt-Hr' is not 'Cold Startup' and not 'Hot Startup' and not 'Shutdown'</i>	LIMIT	Warning	15 minutes Skipped: 1 hour
Unit P11: CO lbs/Cold Startup <i>Alarms when 'CO lbs/Cold Startup' is greater than or equal to 'CO lbs/Cold Startup Limit' 990</i>	LIMIT	Serious	1 minute
Unit P11: CO lbs/Cold Startup Warning <i>Alarms when 'CO lbs/Cold Startup' is greater than or equal to 'CO lbs/Cold Startup Warning Limit' 891</i>	LIMIT	Warning	1 minute Re-alarms: 10 minutes

Alarming:

Future Changes:

- Fourth alarm severity – Orange alarms
 - Primary use will be to provide more severe alarm option between warning and serious levels
 - Suggestions on what to call this type of alarm?
- Other ideas for alarm improvements?
 - Include value and/or limit in alarm description?
 - Easier way to access logic behind alarms real time?
 - Separate field for required operator action (call plant manager, etc.)?